

## 科學與社會 -- 科學與社會的互動

—— 科學與社會的互動與科學與社會的關係

科學與社會 Nature Magazine 科學 AlphaGo Zero paper 科學與社會的關係 [1]

科學與社會的關係與科學與社會的關係

科學

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AlphaGo Zero superhuman [7]  
superhuman  
deep-learning reinforcement superhuman

 AlphaGo Zero  AlphaGo Master  
 AlphaGo Master  superhuman  AlphaGo Master  60  3  AlphaGo Master  superhuman  AlphaGo Master  AlphaGo Zero  superhuman  superhuman [8]

AlphaGo AlphaGo

Deep-learning reinforcement credit trap

leukotomy reinforcement peer review  
Socratic method peer review  
Socratic method peer review

[10]

[11]

☐ Socratic method

Superhuman Superhuman

Alan Turing Geoffrey Hinton Demis Hassabis AlphaGo

Demis Hassabis AlphaGo [12] Geoffrey Hinton

Turing Machine Turing Machine Geoffrey Hinton Turing Machine Alan Turing

Dialogue Concerning the Two Chief World Systems [13] Socratic method

The Sceptical of Chemist

On the Origin of Species

[14]

## Leukotomy BRIAN Initiative

Leukotomy

personalities mental diseases personalities BRAIN Initiative project

leukotomy Leukotomy BRAIN Initiative AlphaGo

3 personality & intelligence [15] Walter Freeman personality & intelligence [15]

BRAIN Initiative project NIH BRAIN 2025 Report “there is general agreement that types can be defined provisionally by invariant and generally intrinsic properties” invariant agreement insights “envision an integrated, systematic census of neuronal and glial cell types” dynamic brain mapping “Link brain activity to behavior” “Produce conceptual foundations for understanding the biological basis of mental processes” mental processes & behavior

BRAIN Initiative project personality & intelligence brain mapping personality & intelligence hidden assumptions

personality & intelligence

BRAIN Initiative project brain mapping mental diseases personality & intelligence personality & intelligence leukotomy

leukotomy AlphaGo

personality & intelligence mental diseases

BRAIN Initiative brain mapping human level intelligence personalities intelligence mental diseases BRAIN Initiative neurosciences AlphaGo generic human intelligence AlphaGo neurosciences [16]

AlphaGo Master AlphaGo Zero AlphaGo Zero AlphaGo AlphaGo Master AlphaGo

AlphaGo

Technological Singularity BRAIN Initiative project Technological Singularity baseless

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AlphaGo Master AlphaGo Master

[7] <http://www.alphago-games.com/> Full Strength of Alphago Zero, i.e. Final Form 40 Blocks 20 Blocks Not Full Strength of Alphago Zero Alphago Zero superhuman

[8]

[9] 2012 "Show, don't tell" show Socratic method tell and discuss

Ideas are cheap

[10] "Go gaming is strictly defined within a very small space. Industrial automations are typically designed in well controlled environments, but not strictly defined. Car driving is regulated, but the environment is not well controlled"

[11]

AlphaGo

[12] AlphaGo Master AlphaGo AlphaGo AlphaGo

[13] Dialogue Concerning the Two Chief Word Systems Socratic Method

AlphaGo

[14] BRAIN Initiative project <https://www.braintrust.org/> **BRIAN Initiative**

[16] 围棋の歴史と未来。AlphaGo の登場による変化と今後の展望。